

REMARKS

The Examiner has rejected claims 19-26, 31, 32, and 34-36 under 35 U.S.C. § 103(a), and has asserted that claims 48-61 are withdrawn from consideration as being directed to a non-elected invention. Applicants have cancelled claims 48-61 without prejudice. Applicants acknowledge the Examiner's withdrawal of the double patenting rejections of the prior Office Action. Claims 19-26, 31, 32, and 34-36, of which claim 19 is independent in form, are presented for examination.

The Examiner has rejected claims 19-26, 31, 32, and 34-36 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,165,644 (Nimon) in view of U.S. Patent No. 6,011,509 (Kim), or over Nimon and Kim in view of U.S. Patent No. 6,352,793 (Kitoh). The Examiner appears to have rejected claim 19 only on the basis of Nimon. Specifically, in the February 27, 2004 Office Action, the Examiner explained:

With respect to claim 19, Nimon et al. teach a lithium battery comprising a positive electrode, a negative electrode and an electrolyte. . . . Exemplary but optional electrolyte salts for the batter[y] cells incorporating the electrol[y]te solvents include lithium thrifluoromethanesulfonimide (LiTFSI), lithium triflate, lithium perchlorate, LiPF₆, LiBF₄ and LiAsF₆. . . . [T]he invention as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to combine lithium perchlorate and a lithium salt selected from the group consisting of LiTFS, LiTFSI, and LiPF₆. (February 27, 2004 Office Action, page 2.)

Claim 19 recites a primary electrochemical cell comprising an electrolyte containing lithium perchlorate and a lithium salt selected from the group consisting of LiTFS, LiTFSI, and LiPF₆. Nimon does not describe or suggest the electrochemical cell recited in claim 19. Nimon describes "batteries including a lithium electrode and a sulfur counter electrode" (See, e.g., Nimon, col. 2, lines 29-30.) The lithium electrode has a surface coating that increases the cycling efficiency of the cell. (See, e.g., Nimon, col. 4, lines 6-9.) Nimon further explains:

Exemplary but optional electrolyte salts for the battery cells incorporating the electrolyte solvents of this invention include, for example, lithium

trifluoromethanesulfonimide ($\text{LiN}(\text{CF}_3\text{SO}_2)_2$), lithium triflate (LiCF_3SO_3), lithium perchlorate (LiClO_4), LiPF_6 , LiBF_4 , and LiAsF_6 , as well as corresponding salts depending on the choice of metal for the negative electrode, for example, the corresponding sodium salts. As indicated above, the electrolyte salt is optional for the battery cells of this invention, in that upon discharge of the battery, the metal sulfides or polysulfides formed can act as electrolyte salts, for example, $\text{M}_{x/z}\text{S}$, wherein $x=0$ to 2 and z is the valence of the metal. (Nimon, col. 10, lines 13-24, emphasis added.)

Applicants have underlined a key sentence that the Examiner ignored. Indeed, the Examiner left the language out when quoting Nimon. The ignored sentence undercuts the Examiner's position that Nimon suggests including multiple salts from the list in the electrolyte, for at least two reasons. First, at the beginning of the sentence, Nimon explicitly states that "the electrolyte salt is optional". The word "salt" is singular, not plural. Thus, Nimon is indicating that at most an optional salt selected from the list can be included in the electrolyte. Second, at the end of the sentence, Nimon explains why even one salt is optional — "the metal sulfides or polysulfides formed" can act as electrolyte salts. Nimon is saying that even one salt is optional because the electrolyte does not need the salt.

A person of ordinary skill in the art, reading the relevant passage in its entirety, instead of selectively, would understand that at most one salt from the list can be included in the electrolyte. There would be no reason to include more than one salt, because the metal sulfides or polysulfides also serve as electrolyte salts. Thus, Nimon does not render claim 19 obvious.

Furthermore, Kim and Kitoh, to the extent that the Examiner is relying on them in rejecting claim 19, do not add anything to the language from Nimon quoted above.

The dependent claims are patentable for at least the same reasons that claim 19 is patentable. Accordingly, Applicants request that the 35 U.S.C. § 103(a) rejections of claims 19-26, 31, 32, and 34-36 be withdrawn.

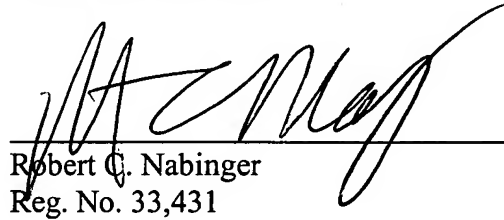
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Applicants believe that claims 19-26, 31, 32, and 34-36 are in condition for allowance, which action is requested. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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